

## Use Case 10: Fault Isolation

### Summary:

This procedure describes what activities are performed by an operator in the control room when he has to find a way to isolate faulty sections from adjacent nodes through the means of reconfiguring the network. This is performed automatically, or by field operative interfaces, opening and re-closing feeder section switches. This function provides extensive help during storms and other emergencies, when the distribution dispatcher's job is particularly difficult.

It is possible to create and execute certain jobs in order to isolate faults [UC24], [UC25] and [UC25].

### Actor(s):

Name	Role description
Operator in the control room	manages the field crew and starts Power flows computation after fault isolation
Field operative	establishes a bypass using an alternative feeding arrangement.

### Participating Systems:

System	Services or information provided
Network Operation	<ul style="list-style-type: none"> <li>Network operation monitoring (substation- and network state supervision, logging)</li> <li>Network control (remote or local through field crews)</li> <li>Fault management (supports fault occurrence diagnosis and provides field information to the dispatcher)</li> </ul>
Operational Planning and Optimization	<ul style="list-style-type: none"> <li>Switching action scheduling/operation work scheduling (dispatching of field crews)</li> <li>Network operation simulation (Power flows computation)</li> </ul>

### Pre-conditions:

The SCADA System is in operation. The operator is logged in the system. It is necessary to reconfigure the network due to a fault or maintenance work. The field operative is ready and equipped.

### Assumptions / Design Considerations:

The operator might not be the same throughout the entire operation, so tagging is fundamental.

### Normal Sequence:

Use Case Step	Description
	<b>Isolation</b>
Isolation message	The operator receives a message about a fault from the SCADA system or maintenance work from

	internal communication, telephone, radio, etc.
Perform isolation	The operator orders the isolation of the line (by opening the switches on both line ends). An order can be to: field operative or control/command via SCADA.
Grounding rod	The operator orders the execution of grounding rod at both sides of the fault, after verification of the line being de-energized.
	<b>Partial or complete restoration of service</b>
Close normal open point to re-energize the area.	The operator reconfigures the network, by closing the normal open switches and back-feeding the de-energized lines.
Temporary line	The operator orders a field crew to establish a bypass using a temporary line.
	<b>Routine Work</b>
Working permit	Proceeds placing a tag on the line (or other related devices, ego, switch at the end) with the appropriated level of identification.
Block Command	The operator can block the command of the switch at both line ends, for further security.
Power flows computation	The operator executes the Power flows computation function to see the new power flow on the lines and to check limits. (The case 'Overloaded element' should be another use case.)

**Exceptions / Alternate Sequences:**

No special alternate sequences are to be described.

**Post-conditions:**

After the isolation of area work is possible and consumers will have power by network reconfiguration.

**References:**

- [1] Use Case – UC24 Job Management/Interactive Job Creation )
- [2] Use Case – UC25 Job Management/Job Execution
- [3] Use Case -- UC26 Job Management/Job Creation by Recording